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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/802,505	03/08/2001	Gregory J. Czora	0007-012	7459

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EXAMINER	
ROSALES HANNER, MORELLA I	

ART UNIT	PAPER NUMBER
2128	

DATE MAILED: 07/16/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/802,505	CZORA, GREGORY J.	
	Examiner	Art Unit	
	Morella I Rosales-Hanner	2128	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *08 March 2001*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-31* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-31* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *08 March 2001* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *3/21/2001*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Detailed Action

1. **Claims 1 – 31** have been examined and are pending.

Drawings

2. Figure 2 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

2.1 New corrected drawings are required in this application. Applicant is advised to employ the services of a competent patent draftsperson outside the Office, as the U.S. Patent and Trademark Office no longer prepares new drawings. The corrected drawings are required in reply to the Office action to avoid abandonment of the application. The requirement for corrected drawings will not be held in abeyance.

Information Disclosure Statement

3. The information disclosure statement (IDS) submitted on March 27, 2002 was filed after the mailing date of the March 8, 2001, on The submission is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4.1 Claim 24 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. Line 2 of the claim recites **"??"** Which is not enabled in the specification.

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5.1 **Claim 6** recites the limitation "the digital life form" in lines 3, 5 and 6. There is insufficient antecedent basis for this limitation in the claim.

5.2 **Claim 7** recites the limitation "the digital life form" in lines2 and 3. There is insufficient antecedent basis for this limitation in the claim.

5.3 **Claim 8** recites the limitation "said digital life form" in line 2. There is insufficient antecedent basis for this limitation in the claim.

5.4 **Claim 24** is rejected under 35 U.S.C. 112, second paragraph, as being indefinite ("??") in that it fails to point out what is included or excluded by the claim language. This claim is an omnibus type claim.

5.5 The term "??" in **claim 24** renders the claim vague and indefinite. The term "??" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention.

5.6 **Claim 27** recites the limitation **"such actions"** in line 3. There is insufficient antecedent basis for this limitation in the claim.

5.7 **Claim 28** recites the limitation **"said actions"** in line 2. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 101

6. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

6.1 **Claims 27 - 28 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.** The language of the claim raises a question as to whether the claim is directed merely to an abstract idea that is not tied to a technological art, environment or machine which would result in a practical application producing a concrete, useful and tangible result to form the basis of statutory matter under 35 U.S.C. 101. In particular, the claims are directed to an "abstract idea". The claimed method and steps are directed to performing a plurality of actions and storing information relative to such actions, which are not embodied in any physical structure or physical transformation steps.

Claim Interpretation

7. In the interest of compact prosecution the Examiner has interpreted the following claims as follows:

- Claim 6 has been interpreted as " **a computer interface, comprising: a digital life form having a plurality of attributes...**";
- no patentable weight has been given to the part of the preamble of **claim 27** that refers to "...**valuable for survival**.." since it appears to be inconsistent with the limitations cited as part of the claim. Furthermore line 2 of the claims cites "**optional behaviors**" which suggests that it is not valuable or essential for survival.

Claim Rejections - 35 USC § 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8.1 **Claims 1 – 30** are rejected under 35 U.S.C. 102(b) as being clearly anticipated by a printed publication from Oliveira et al, titled **"LamBaDa: An Artificial Environment to Study the Interaction between Evolution and Learning"**, hereafter referred to as *Oliveira*

8 .1.1 As regard to **Claims 1 - 4** *Oliveira* teaches **[Pg 145, section 1]** an artificial environment, with computational means, to simulate a population of agents (computer generated entities) comprising:

- a structure that includes components such as appearance, diet and configuration as well as a state that reflects actual standing (attributes) including age, energy (vitality), number of descendents and locations **[Pg 146, section 3, 2nd paragraph]**; and
- a plurality of actions an agent can performed such as finding and eating a prey, which affects the vitality of an agent since when an agent's energy drops to zero (reduction of vitality below a preset level) the agent dies. **[Pg 147, Agents Dynamics: Behaviors and Interactions]**

8.1.2 As regard to **Claim 5**, *Oliveira* teaches **[Pg 145, section 1]** that agents are created with a certain amount of energy and aging is represented through the diminution of one unit of energy (energy packet) and that when an agent energy drops to zero, the agent dies.

8.1.3 As regard to **Claim 6**, *Oliveira* teaches **[Pg 145, section 1, 3rd paragraph]** an artificial life system with computational means (computer interface), comprising:

- agents (digital life form) having a structure that includes components such as its appearance, diet, and configuration as well as a state that reflects actual standing (attributes) including age, energy (vitality), number of descendents and locations **[Pg 146, section 3, 2nd paragraph]**;

- an 'actions neural network' that has a variable number of outputs and where each output determines an action that the agent can perform, such as eating or reproducing **[Pg 147, left column, first paragraph]**; and
- a mechanism of compensation, where the final decision of an agent is based on an adjusted value (selection criteria) obtained with the propagation of each action to its environment and that eating is the only actions that contributes to the vitality on the agent therefore, if the agent repeatedly chooses not to eat its energy level will drop to zero and this in turn will result in the death of the agent **[Pg 147, Agent Dynamics: Behaviors and Interactions]**.

8.1.4 As regard to **claim 7**, *Oliveira* teaches **[Pg 145, right column, last paragraph] and [Pg 149, Analysis of the Interactions between learning and evolution]** a birth process wherein experience from the digital life form is passed on to a next generation of the digital life form.

8.1.5 As per Claim 8, *Oliveira* teaches the computer interface of claim 6, wherein:

- said digital life form perceives a plurality of objects in an environment **[Pg 147, Agent Dynamics: behaviors and Interactions, last two paragraphs]**; and

- said actions are selected to optimize vitality dependant upon the particular objects perceived [**Pg 147, Agent Dynamics: behaviors and Interactions, last two paragraphs**].

8.1.6 As per **Claim 9**, *Oliveira* teaches actions that are taken to optimize at least one of a plurality of simulated feelings [**Pg 146, left column, 2nd full paragraph**] & [**Pg 148, left column**].

8.1.7 As per Claim **10**, *Oliveira* teaches that at least one of the simulated feelings is a feeling of fullness [**Pg 145, section 1**].

8.1.8 As per **Claim 11**, *Oliveira* teaches that the feeling of fullness is represented by a quantity of energy packets [**Pg 145, section 1**].

8.1.9 As per **Claims 12 - 14.** *Oliveira* teaches a an artificial environment, with computational means, to simulate a population of agents (computer generated entities) comprising:

- a structure that includes components such as appearance, diet and configuration as well as a state that reflects actual standing (attributes) including age, energy (vitality), number of descendents and locations [**Pg 146, section 3, 2nd paragraph**]; and

- a plurality of actions an agent can performed such as finding and eating a prey, which affects the vitality of an agent since when an agent's energy drops to zero (reduction of vitality below a preset level) the agent dies. **[Pg 147, Agents Dynamics: Behaviors and Interactions]**.

:

8.1.10 As per **Claim 15**, *Oliveira* teaches that at least one of the attributes of the digital life form is a simulated feeling **[Pg 146, left column, 2nd full paragraph]** & **[Pg 148, left column]**.

8.1.11 As per **Claim 16**, *Oliveira* teaches **[Pg 147, Agents Dynamics: Behaviors and Interactions]** creating a digital life form, comprising:

- defining a digital life form;
- providing access for the digital life form to an environment;
- defining a plurality of potential actions for the digital life form; and
- providing consequences to the digital life form for such actions.

8.1.12 As per **Claim 17**, *Oliveira* teaches **[Pg 146, section 3, 2nd paragraph]** a digital life form that includes a plurality of attributes.

8.1.13 As per **Claim 18**, *Oliveira* teaches **[Pg 145, section 1]** a computer generated simulated environment.

8.1.14 As per **Claim 19**, *Oliveira* teaches **[Pg 147, Agent Dynamics: Behaviors and Interaction]** that at least one of the actions includes EAT.

8.1.15 As per **Claim 20**, *Oliveira* teaches **[Pg 147, Agent Dynamics: Behaviors and Interaction]** that EAT is defined as assimilating energy packets to increase the vitality of the digital life form.

8.1.16 As per **Claim 21**, *Oliveira* teaches **[Pg 147, Agent Dynamics: Behaviors and Interaction]** that at least one consequence of the actions is the simulated death of the digital life form.

8.1.17 As per **Claim 22**, *Oliveira* teaches **[Pg 147, Agent Dynamics: Behaviors and Interaction]** providing a strategy for selecting from a plurality of actions.

8.1.18 As per **Claim 23**, *Oliveira* teaches **[Pg 147, Agent Dynamics: Behaviors and Interaction]** a method for simulating consciousness that comprises identifying characteristics of objects in an environment and storing lists of said characteristics.

8.1.19 As per **Claim 24**, *Oliveira* teaches **[figure 1 and corresponding text]** identifying at least ?? of said objects by comparison to said lists of said characteristics.

8.1.19 As per **Claim 25**, *Oliveira* teaches **[figure 1 and corresponding text]** acting on at least one object according to the characteristics of that object.

8.1.20 As per **Claim 26**, *Oliveira* teaches **[Pg 147, Agent Dynamics: Behaviors and Interaction]** percept lists.

8.1.21 As per **Claim 27**, *Oliveira* teaches **[Pg 146, Agents - Pg 147, Agent Dynamics: Behaviors and Interaction] a** method for obtaining information valuable for survival, comprising:

- performing a plurality of optional behaviors; and
- storing information relative to such actions for future reference.

8.1.22 As per **Claim 28**, *Oliveira* teaches **[Pg 147, Agent Dynamics: Behaviors and Interaction]** actions that are initially selected in a random manner.

8.1.23 As per **Claim 29**, *Oliveira* teaches **[Pg 147, Agent Dynamics: Behaviors and Interaction & Pg 149, Analysis of the interactions between learning and evolution]** forming concepts in a Digital Life Form, by comparing percepts to form concepts.

8.1.24 As per **Claim 30**, *Oliveira* teaches **[Pg 147, Agent Dynamics: Behaviors and Interaction & Evolution and Learning]** that concepts are compared to form conceptual chains.

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

The *USB1.1* reference does not expressly teach the use of an astable

9.1 **Claim 31** is rejected under 35 U.S.C. 103(a) as being unpatentable over a printed publication from Oliveira et al, titled **"LamBaDa: An Artificial Environment to Study the Interaction between Evolution and Learning"**, hereafter referred to as *Oliveira*, in view of US patent No. 6,651,044 to Stoneman, hereafter referred to as *Stoneman*. As per **Claim 31**, *Oliveira* teaches **[Pg 147, Agent Dynamics: Behaviors and Interaction & Pg 149, Analysis of the interactions between learning and evolution]** forming concepts in a Digital Life Form, by comparing percepts to form concepts. *Oliveira* does not expressly teach concepts that are associated with natural language.

Stoneman teaches [Abstract] natural language in the context of intelligent agents (artificial life form).

It would be have been obvious to one of ordinary skills in the art, at the time of the invention, to modify the teachings of *Oliveira* with the *Stoneman* teaching because *Oliveira* teaches [**Pg 152, left column, 3rd full paragraph**] that another aspect that deserves further investigation concerns the interaction of agents in a society and that these interactions include the simulation of cooperation and communication (natural language).

10. *Additional references*

The following is a list of references that are relevant to the claimed invention but were not cited by the examiner:

- "How Learning and Evolution Interact: The Case of a Learning Task which Differs from the Evolutionary Task"; By Stefano Nolfi; Institute of Psychology, National Research Council.
- "Artificial life and evolutionary computing in machine perception" by Heudin, JC, p. 418-428, Proceedings of CAMP`95.
- "Concepts of Cooperation in Artificial Life" ; Harold W. Thimbleby; 1995 IEEE.
- Hot Holiday Dolls 2000" Dolls for Children.
- Building Life-like "Conscious" Software Agents; Stan Franklin.
- "Evolutionary Robotics: Exploiting the Full Power of Self-organization"; Stefano Nolfi; 1998.

- "Modeling Cognition with Software Agents"; Stan Franklin.
- "Towards an Architecture for Artificial Animated Creatures"; Luiz-Marcos Garcia; Ricardo C. Farias; Fernando W. da Silva; Roderic A. Grupen; 2000 IEEE.
- "Interactive Artificial Life Based on Behavior and Perception in a Virtual Environment"; Hyun Seung Yang; Hyun-jin Park, Yong-jin Cho; 2000 IEEE.

Additional Information

11. Any inquiry concerning this communication or earlier communication from the examiner should be directed to Morella Rosales-Hanner whose telephone number is (703) 305-8883. The examiner can normally be reached Monday-Friday from 7:00 a.m. to 3:30 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kevin Teska can be reached on 703 305-9704. The fax number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.

MRH

June 30th, 2004

KEVIN J. TESKA
SUPERVISORY
PATENT EXAMINER